

THE UPPER DIVISION OF THE
WITWATERSRAND SYSTEM IN
THE VIRGINIA AND MERRIE-
SPRUIT MINING AREAS.

by

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A B S T R A C T

This treatise provides a record of the stratigraphy and structure in the southernmost extension of the Witwatersrand System and is based on the results obtained from bore-hole cores and from detailed mapping underground. Several disconformities encountered in these sediments are interpreted as marginal disconformities of a geosynclinal basin. It is contended that the bankets were formed in neritic and littoral environments closely associated with profiles of equilibrium, such as disconformities, where conditions favour the concentration of heavy minerals, including gold and uraninite.

The composite radiometric log of the area south of the Sand river, drawn up by Dr. D.J. Simpson in 1951, is revised by including into it the portion of the log of bore-hole K.A.2 in which the Intermediate Reefs occur.

Chloritoid is confined to the Lower Footwall beds, the Khaki Shale Marker and the Upper Shale Marker. The variation of the optical properties of chloritic minerals indicate that a wide range of these minerals exist in the sediments. Pyritic stringers appear to be natural concentrations of such heavy minerals as pyrite, ilmenite, chromite and zircon.

Heavy mineral investigations, to be of correlative value, in the case of the Witwatersrand System would require considerable basic research.

Intrusive rocks have been classified under the following types ranging from the youngest to the oldest:- dolerite, epidiorite, uralite diabase, pyroxene diabase, chlorite diabase and Ventersdorp diabase.

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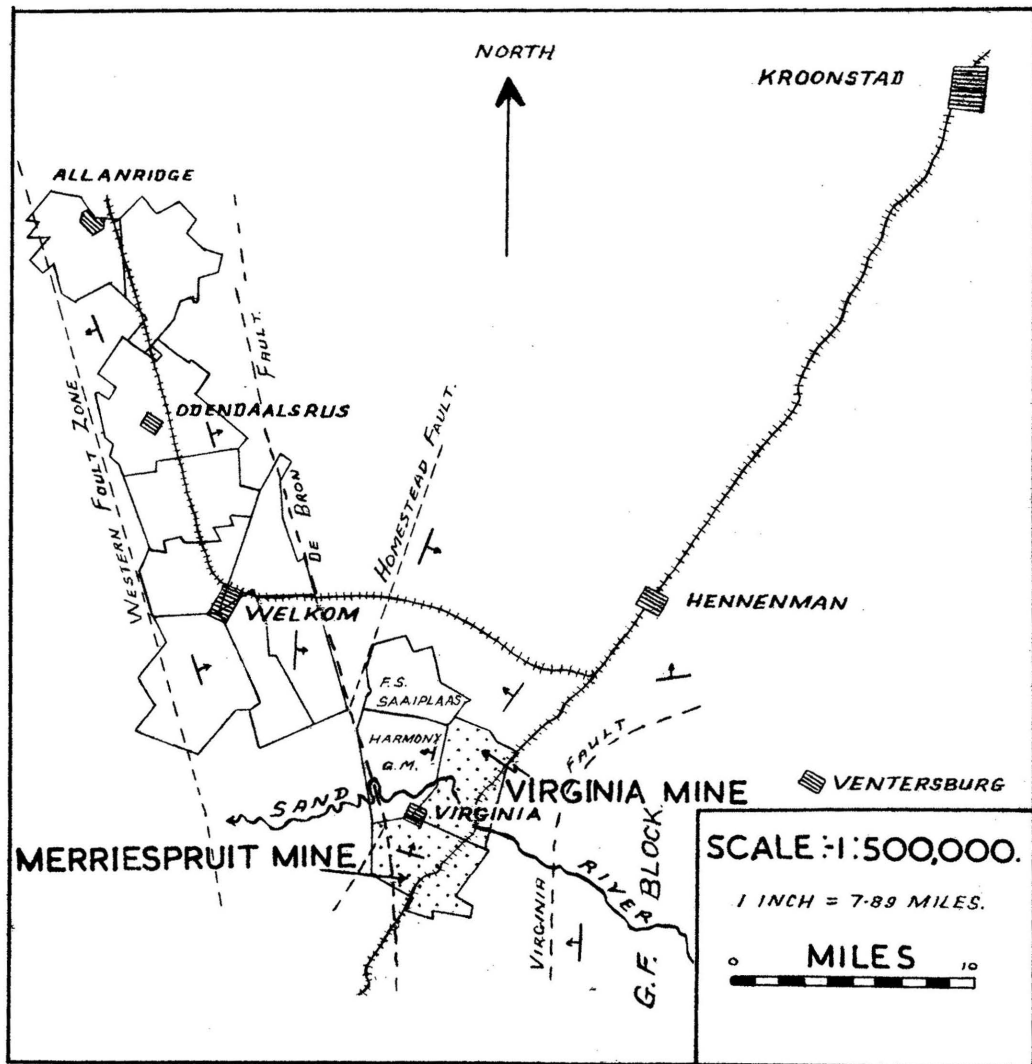


FIG. 1.

Locality map of Virginia and Merriespruit Mines.